REMARKS

Claims 21-26 are in this application. Claims 27-70 were withdrawn by the Examiner pursuant to the Examiner's Restriction Requirement. Applicant hereby cancels the withdrawn claims.

The Examiner objects to the Title of the Invention as not descriptive. Applicant has herein amended the Title of the Invention to advance prosecution of this case.

Claim 21 stands rejected under 35 U.S.C. § 112, second paragraph. Applicant traverses and directs the Examiner's attention to the extensive disclosure beginning at page 5, line 29 and ending at page 8, line 19, describing in full the definition of "a preferential stimulator of TH1", and providing numerous examples and citations supporting the description. In particular, the paragraph at page 6, lines 17-28 of the instant specification cites the Annual Review of Immunology article by Mosmann and Coffman that describes the TH1 and TH2 immune responses. It is clear that even back to 1989, those skilled in this art recognized two types of immune responses (TH1 and TH2), and that one might be preferentially stimulated over the other. Also, the Chu et al. prior art cited by the Examiner discusses differential induction of TH1 and TH2 resposnes, and refers to these as "Th1-dominated responses" and "Th2-dominated responsés". It is clear that those skilled in this art at the time the invention was made recognized and understood terms such as "dominated" and "preferential" when discussing TH1 and TH2 immune responses. Thus, there can be no "varied interpretation" of "a preferential": in the context of the instant invention, one skilled in this art would know and appreciate the meaning of "a preferential stimulator of TH1".

Claim 26 is rejected as indefinite. Applicant has amended Claim 26 herein rendering the Examiner's rejection moot.

Claims 21-26 are rejected under 35 U.S.C. § 112, first paragraph as "not reasonably [providing] enablement for having a vaccine comprising any or all HPV antigens and any and all HSV antigens in combination with an adjuvant in general, or in particular an adjuvant that induces TH1-cell response". The Examiner appears to object to the possible inclusion of "non-structural protein antigens" within the scope of the claims. Applicant has amended the claims to limit the possible antigens in the claimed composition to two, HSV gD and HPV L1, both well known structural antigens.

The Examiner also includes a novel enablement requirement, one that requires an applicant to perform "challenging experiments" in order for a claim directed to a vaccine composition to satisfy 35 U.S.C. § 112, first paragraph. Applicant traverses and requests the Examiner to point out where in the statutes, rules or even the case law can one find this requirement. In fact, it is well know to patent practicioners and examiners that experiments tantamount to performing clinical trials are decidedly not required to support patentability.

For the Examiner's information, Applicant provides the following definitions for "vaccine" from several different dictionaries (see http://dictionary.reference.com/search?q=vaccine):

A preparation of a weakened or killed pathogen, such as a bacterium or virus, or of a portion of the pathogen's structure that upon administration stimulates antibody production or cellular immunity against the pathogen but is incapable of causing severe infection.

Source: *The American Heritage® Dictionary of the English Language, Fourth Edition*
Copyright © 2000 by Houghton Mifflin Company.
Published by Houghton Mifflin Company. All rights reserved.

A preparation of a weakened or killed pathogen, such as a bacterium or virus, or of a portion of the pathogen's structure that upon administration stimulates antibody production against the pathogen but is incapable of causing severe infection.

Source: *The American Heritage® Stedman's Medical Dictionary*
Copyright © 2002, 2001, 1995 by Houghton Mifflin Company. Published by Houghton Mifflin Company.

A preparation of killed microorganisms, living attenuated organisms, or living fully virulent organisms that is administered to produce or artificially increase immunity to a particular disease <polio vaccine>; also : a mixture of several such vaccines <measles-mumps-rubella vaccine>

Source: *Merriam-Webster Medical Dictionary, © 2002 Merriam-Webster, Inc*

Immunogen consisting of a suspension of weakened or dead pathogenic cells injected in order to stimulate the production of antibodies [syn: vaccinum]

Source: *WordNet ® 2.0, © 2003 Princeton University*

It is noted that Applicant's vaccine composition falls squarely within each and every definition of vaccine, and that none of the definitions require "challenging experiments". Applicant respectfully asserts that in view of the amendments to the claims, no undue experimentation is required to practice the instant invention as currently claimed and requests withdrawal of the enablement rejection.

The Examiner states that "Claim 1" is rejected under 35 U.S.C. § 102(b) as anticipated by Lowy et al. (WO 96/11274). As an initial matter, Applicant respectfully points out that Claim 1 is no longer pending in this case, and therefore Applicant assumes that the rejection is directed to Claim 21. Applicant traverses the rejection and states that, in view of the instant amendment to Claim 21 requiring the HSV gD antigen, Lowy et al. does not teach each and every limitation of the amended claim. Therefore Lowy et al. cannot anticipate the claim, and the rejection should be withdrawn.

Claims 21-26 stand rejected under 35 U.S.C. § 103(a) as obvious over Lowy et al. (US 5,855,891) and Chu et al. Applicant traverses and states that one skilled in this art would not have been motivated to combine the teachings of Lowy and Chu to reach the instant invention as claimed in amended Claim 21 and claims dependent thereon. Lowy et al. clearly teach the that it is desirable and sufficient to induce a humoral (TH2) immune response to L1 VLPs (col. 1, lines 63-65) or VLPs composed of capsid proteins (col. 2, lines 58-60), but that papillomavirus proteins other than L1 and L2 are targets to cell-mediated (TH1) immune responses (col. 2, line 66 – col. 3, line 5). Accordingly, Lowy et al. suggests that vaccines containing only HPV capsid proteins (e.g., L1) would benefit from an adjuvant that induces a TH2 response (see also Koutsky et al. (2002) New England J. of Med. 347(21):1645-1651, who apparently followed Lowy's advice: the authors demonstrated 100% efficacy against HPV infection after immunization with a vaccine comprising HPV 16 L1 VLPs and a TH2 adjuvant (amorphous aluminum hydroxyphosphate sulfate)).

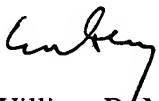
Lowy in fact never suggests use of an "adjuvant" at all as that term is used by those knowledgable in this art, but instead only discusses the possibility of fusing HPV L2 to a "binding domain of a co-stimulatory" protein. However, Lowy et al. does not suggest inclusion of such fusion proteins for induction of any particular arm of the immune response. Thus, Lowy et al. provides no motivation to induce a TH1-type immune response, and in fact teaches away from induction of TH1 immunity by vaccines containing HPV L1. Lowy et al. is silent on induction of any type of immune response to HSV gD, but it can be assumed that since gD is an outer membrane glycoprotein (as opposed to a "structural antigen" (to use the Examiner's phraseology)), induction of a humoral (TH2) response would also be desirable.

Chu et al. merely describes and characterizes CpG oligonucleotides as adjuvants capable of inducing a TH1-dominated immune response, but does not discuss immunity to HSV or HPV. Applicant therefore respectfully asserts that there is no motivation to induce a TH1-type immune response to HPV L1 or HSV gD in the art, and therefore there is no motivation to combine the antigens recited in amended Claim 21 and a TH1 adjuvant. The instant invention is thus not prima facie obvious.

Claims 21-26 stand rejected under 35 U.S.C. § 103(a) as obvious over Lowy et al. (US 5,855,891) and Stephenne et al. (WO 99/45957). Applicant traverses and states that Stephanne et al. is not available as prior art against the instant application. Stephenne et al. was published on September 16, 1999, several days after the earliest priorty date claimed in the instant application (September 7, 1999). Lowy is discussed above, and as admitted by the Examiner, "does not teach adjuvant that would 'preferential' stimulator of TH1 response". Accordingly, the instant claims are not obvious in view of the cited art.

In view of the above remarks, reconsideration of this application is requested. Should the Examiner have any questions or wish to discuss any aspect of this case, the Examiner is encouraged to call the undersigned agent at the number below.

Respectfully submitted,



William R. Majarian
Attorney for Applicant
Registration No. 41,173

GLAXOSMITHKLINE
Corporate Intellectual Property - UW2220
P.O. Box 1539
King of Prussia, PA 19406-0939
Phone (610) 270-5968
Facsimile (610) 270-5090
N:\Will\APPS\B-cases\B45198\Response to Office Action.doc